

Global Cabin Air Quality Executive (GCAQE)

WWW.GCAQE.ORG

Brief Overview of the contaminated air issue





GCAQE

The Global Cabin Air Quality Executive (GCAQE) is the leading organization globally representing air crew with regard to cabin air quality, specifically contaminated air issues and representing over 500,000 aviation workers globally in 3 continents.

GCAQE...

- Set up in 2006.
- Unique....one issue only.
- Members range from Australian pilots to Canadian flight attendants.
- Members include:
 - SAFE;
 - Norwegian ALPA;
 - Norwegian Kabinforening NK.

GCAQE...WHY?

Set up because of the direct failure of:

- Regulators to regulate;
- Manufacturers failed to address the problem;
- Airlines failed to protect work force and public;
- Governments putting industry needs before public and crews welfare;
- Crews getting sick;
- Flight safety being compromised.

Tristan Loraine / Judith Murawski

- Co-Chairs of the GCAQE.
- ASHRAE SPC-161 voting members.
- OHCRA FAA Project Oversight Committee.
- Nearly 20 years of research into CAQ, etc...
- Tristan is a former Captain on the B757 / B767 and a former Health & Safety representative.
- Judith is an Industrial Hygienist and employed by AFA.

Susan Michaelis

- GCAQE Head of Research.
- Helped set up the 1999-2000 Australian Senate investigation.
- Over 10 years of research into CAQ, etc...
- Susan is a former BAe 146 pilot.
- PhD student at UNSW, Sydney.
- Author of the ACARM.
- CAQ Consultant.

THE PROBLEM OVERVIEW

- 'Bleed Air' contaminated with pyrolised / heated engine oils and hydraulic fluids.
- Acknowledged to occur by: Transport Safety Bureaus, Aviation Regulators, Some Airlines, Crew Unions, Doctors, Scientists, Oil and Some Aircraft Manufacturers, Etc....

BLEED AIR IS NOT FILTERED

THE PROBLEM IN DETAIL

- Synthetic jet engine oils and hydraulic fluids contain toxic compounds such as the organophosphate 'TCP' or 'TBP' and skin sensitisers such as PAN.

SYNERGISTIC EFFECTS
OF EXPOSURE OCCUR

A CONTAMINATED AIR EVENT

- Often has NO visible fumes;
- Usually has a smell but not always (CO);
- Smell can be faint and need to focus to smell it;
- Often seen as the 'normal aircraft' smell;
- Sense of smell and description WILL vary...

CAN BE REPEATED

LOW LEVEL

OR ONE OFF BIGGER EVENT

IDENTIFYING CONTAMINATED AIR

Contaminated air descriptions include:

- Oil
 - Locker room
 - Wet dog
 - Hot oil
 - Pungent
- Sweaty-sock-like
Aromatic (like benzene)
Acrid
Burnt oil
Dirty Socks

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DESCRIPTIONS WILL VARY



HAVE YOU EVER BEEN TOLD?

- Never!

PASSENGERS NEVER
TOLD!

ARE CREWS BEING EXPOSED ?

- VOCs above AIHA guidelines found.
- TCP found on a pilots trousers.
- TCP found in swab tests from the surface of the flight deck walls and in cockpit roof top filters.
- TCP found in HEPA filters and in ductings.
- TCP on walls of passenger cabins.
- TCP found in air sampling by RAAF and Honeywell.
- CO detected in flight on the BAe 146 in 83% of flightq.

YES...

CREWS ARE BEING EXPOSED

MEDICAL EFFECTS

Crew And Passenger 'Aerotoxic Effects'
Following Inhalation Of The Heated
Products Of Synthetic Jet Engine Oils And
Hydraulic Fluids Can Be:

- **SHORT TERM**
- **LONG TERM**

SHORT TERM 'IN-FLIGHT' EFFECTS

These may include some or all of the effects listed:

- Nausea
- Disorientation
- Skin Rashes
- Tingling or numbness
- Stupor
- Tunnel vision
- Headaches
- Sore eyes, throat
- Chest pains
- Tremor
- Lethargy
- Loss of awareness

LONG TERM HEALTH EFFECTS

These may include some or all of effects listed:

- Central Nervous System Effects.
- Autonomic Nervous System Effects.
- Working Memory / Cognitive Problems.
- Immune and Chronic Neurotoxic Problems.
- Fatigue, Respiratory Problems etc..

FLIGHT SAFETY ISSUES

- Most crews are unaware of the contamination hazard.
- Crews errors ARE being made.
- Pilots NOT using 100% oxygen.
- Crews see fumes as a nuisance and not as a risk.
- No protection for flight attendants or passengers.

FLIGHT SAFETY IS BEING
COMPROMISED

UK FUMES DATA

- 1050 UK CAQ events shows:
- Oxygen used usually by 1 pilot only in less than 20% of events.
- 40% of events list various forms of impairment from headache to incapacitation.

REGULATIONS NOT WORKING

FAR 25.831

- (a) the ventilation system must be designed to provide a sufficient amount of uncontaminated air to enable the crewmembers to perform their duties without undue discomfort or fatigue and to provide reasonable passenger comfort.
- (b) Crew and passenger compartment air **must be free from harmful or hazardous concentrations of gases or vapors.**

EXPOSURE STANDARDS

- Exposure standards used for industrial workers cannot be applied to aviation.
- Acknowledged by AsMA, Honeywell, UK Government, RAAF, Occupational Health Doctors...

EXPOSURE STANDARDS

DO NOT APPLY

ARE PEOPLE BEING EXPOSED?

- TCP 'Blood Tests' - YES
- TCP 'Swab Tests ~ 85%' - YES
- TCP 'Air Sampling' - YES

Even in my blood!

IS CREW HEALTH AFFECTED ?

- 1977 'Air National Guard' - YES
- 1998 'Ansett Airlines Committee' - YES
- 2000 'The Australian Senate' - YES
- 2005 'Major Conference – London' - YES
- 2006 'Workers Compensation...' - YES

CREW HEALTH COMPROMISED

CONTAMINATED AIR DETECTION

- NO contaminated air detection systems fitted!
- Flight safety relies on pilots smelling contaminated air and then going onto emergency oxygen.
- Crews are not tested or required to have any sense of smell!

CREWS ARE THE WEAK LINK

THE EXTENT OF THE PROBLEM

- Current aircraft design results in risk of a 'contaminated air event'.
- Some engines/aircraft are more known for problems than others, BAE 146, B757, MD80, EMB145, A320, A330, B737-6/7/8.

40 YEAR OLD

GLOBAL INDUSTRY PROBLEM

UNDER REPORTING OF EVENTS

- Many in industry claim it's a rare event.
- UK CAA say NO under reporting problem...
- Problem acknowledged by US - FAA, Australian ATSB, Royal Australian Air Force, UK - AAIB, Canadian – TSB, Norwegian CAA, Occupational and medical doctors etc..

ALL EVENTS SHOULD BE
REPORTED <4% ARE

THE MISINFORMATION.....

- Must have been your wife's cooking.
 - Air is filtered.
 - Air is safe.
 - Need 100% scientific proof.
- Etc..

THE FUTURE.....

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- Install filters on current aircraft.

End of Overview

ANY QUESTIONS?

